National Aeronautics and Space Administration

MARSHALL STAR

Serving the Marshall Space Flight Center Community

Aug. 26, 2010

Marshall team to honor 'Work of Generations' on Sept. 8

Event to commemorate 50th anniversary of center's dedication

To commemorate the Sept. 8, 1960, Marshall Space Flight Center dedication ceremony, Marshall team members are invited – exactly 50 years later – to share cake and ice cream, take a unique team photo and reflect on five decades of history-making science, engineering and spaceflight.

The theme for the Sept. 8 event in Activities Building 4316 is "The Work of Generations." It is open to all civil service employees, retirees and Marshall badged contractors.

Fifty years ago, President Dwight Eisenhower visited Huntsville to lead the dedication ceremony. He unveiled a bust of the center's namesake, U.S. Army Gen. George C. Marshall, who received the Nobel Prize in 1953 for overseeing the European Recovery Program – commonly known as the Marshall Plan – which secured $13 billion in post-war food, machinery and other aid for Europe.

The commemoration will open with an aerial photo shoot at 12:30 p.m. in the field south of the Activities Building. Hundreds of Marshall workers will assemble to create a giant "50," to be photographed from a boom crane. Participants are encouraged to wear 50th anniversary T-shirts or other NASA or Marshall shirts for the photograph. Anniversary T-shirts are on sale in the gift shop in Building 4203 while supplies last.

From 1:30-3:30 p.m., team members can socialize and enjoy sweet refreshments provided by the NASA Exchange in Building 4316, while browsing exhibits celebrating Marshall's past, present and future mission in space.

The NASA Exchange will provide 50 door prizes during the event, including 50th anniversary pins, coins, mugs, caps and T-shirts. To be eligible, one must participate in the aerial photo shoot.

For bus schedules and more details, please read next week's Marshall Star and visit Inside Marshall or NASA Marshall on Facebook.

Center director portraits now displayed in Morris Auditorium

If you have been wondering what has happened to the collection of portraits of Marshall's Center Directors that had been in the lobby of Building 4200 for many years, look up the next time you are in Morris Auditorium and you will find them prominently displayed and brightly lit along the walls there. The portraits look great in their new home and employees are encouraged to visit Morris Auditorium to view them.

New historic marker to recognize 50 years of achievement at Marshall

On Sept. 8, Marshall Space Flight Center leaders will unveil an Alabama historic marker commemorating the formation of the NASA center – and the subsequent 50 years of Marshall innovation and success.

The ceremony will be held from 9-10 a.m. on the

*See **50 years** on page 5*

Director's Corner

'Let's finish 2010 accident-free!'

Marshall started pursuing three key initiatives to improve our business this year – inclusion, collaboration, and safety. These are basic needs for us to work together as a team. I'd like to take this opportunity to talk about the status of our safety initiative.

While the total of time lost due to accidents this year appears to be slightly lower than 2009, we had 42 recordable accidents as of August 19. That's exactly the number we ended 2009 with, and we still have more than a month to go before fiscal 2010 ends. I think it's fair to say we plainly have room for improvement.

We are all conscious of the importance of safety – in the hardware we use to send people to space, in our workplace, and in our daily lives. I'm sure at some point we've all been working around the house and have been reminded of a tip, a safety alert, or a monthly safety briefing that prompts us to be more careful.

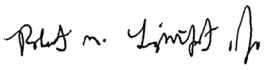
Marshall has well-established safety processes and world-class safety metrics. In fact, both have been complimented by the Aerospace Safety Advisory Panel (ASAP). But, safety is not just about numbers and checklists. It's about people. If you get hurt, it affects your family. It also affects your colleagues.

I understand that the idea of a truly injury-free workplace is hard to grasp in an environment filled with high pressures, high temperatures, high voltage, hazardous chemicals, and enormous weights. Yet when I think about the individuals who got hurt last year, I can't accept that it was just okay for them to get hurt or that it was somehow inevitable.

That's the approach we've been taking this year. Safety means moving beyond impressive statistics. It's about caring for our coworkers and friends. We're not pursuing safety simply for reporting metrics. We are doing it because we care about each and every person that comes here to work every day. I am committed to a workplace where no one gets hurt. Whenever I see an accident report where someone skipped a step, rushed, accepted an unsafe condition, or didn't recognize the environment they were in, I know in my heart that accident didn't have to happen.

So, our safety initiative is primarily about safety culture improvement. It's about exhibiting behaviors and actions that prove our belief that even one injury is too many – because that means that a person, someone we work with every day, someone we care about, is hurt.

Thanks for your continued commitment to provide us a safe workplace. Let's finish 2010 accident-free!



Robert Lightfoot
Marshall Center Director

6,107 pounds of food collected for Feds Feed Families; only 243 pounds to goal!

The Marshall Space Flight Center has collected 6,107 pounds of food for needy families for the "Feds Feed Families" food drive, which will run until Aug. 30. Marshall has to collect only 243 more pounds to meet the center's goal of 6,350 pounds.

The nationwide goal is to collect 1.2 million pounds. Bins for non-perishable food items are set up in the following buildings: 4200, 4203, 4600, 4601, 4708, 4487, 4666 and the National Space Science and Technology Center. Boxes will be picked up Aug. 30.

Feds Feed Families was launched in 2009 by federal agencies in Washington, responding to shortages at food banks across the nation's capital. NASA Headquarters donated 1,200 pounds of food during that initial drive, and helped expand the challenge nationwide this year.

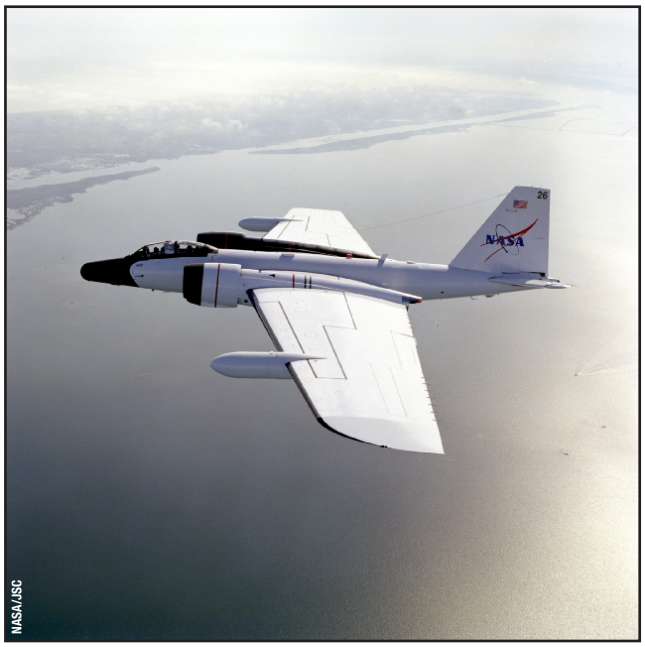
For more information or questions, contact Cindy Spidel at 544-0144.

Tropically speaking, NASA investigates precipitation shapes, sizes for severity

By Nick Brown

Rain drops are fat and snowflakes are fluffy, but why does it matter in terms of predicting severe storms?

We've all seen fat rain drops, skinny rain drops, round hailstones, fluffy snowflakes and even ice needles. This summer, NASA researchers are going to get a look at just how much these shapes influence severe storm weather. To do it, they'll have to look inside the guts of some of the world's fiercest storms. NASA recently assembled a team of hurricane scientists from across the country to carry out high-altitude-aircraft surveillance to explore in detail how storms form, intensify and dissipate.



AMPR will sit in the bomb bay of a WB-57 airplane, where it will scan the surfaces below to measure both how hard it's raining and the type of precipitation being produced by a storm.

Earth scientists and engineers at the Marshall Space Flight Center have redesigned one of their instruments, the Advanced Microwave Precipitation Radiometer, or AMPR, to better observe the different shapes of precipitation. In August and September, AMPR will fly at an altitude of 60,000 feet over the Gulf of Mexico and Atlantic Ocean. It will sit in the bomb bay of a WB-57 airplane, which is based at the NASA Johnson Space Center's Ellington Field in Houston.

During these flights, AMPR researchers will test a new build – the instrument is an upgraded version of the original AMPR built at Marshall in the early 1990s – and use it to participate in NASA's upcoming hurricane study, the Genesis and Rapid Intensification Processes field campaign, better known as GRIP. The campaign involves three planes mounted with 14 different instruments, including AMPR. The instruments will all work together to create the most complete view of a hurricane to date.

Researchers hope the hurricane campaign will help them answer some of nature's most perplexing questions. As tropical storms grow, they produce massive amounts of rain – a key element in the development of full-scale hurricanes. Scientists will use AMPR along with the other instruments, such as data from the Tropical Rainfall Measuring Mission or TRMM satellite, to figure out just how hard it's raining inside these ferocious storms, and how much of that rain is associated with the production of ice during intensification.

"If you don't know how hard it's raining or where the rain is forming in the atmosphere, you don't know hurricanes," said Dr. Walt Petersen, AMPR principal investigator and Marshall Center earth scientist. "AMPR provides us an opportunity to see their precipitation structure by using an instrument like those currently flying on, for example, the TRMM and Aqua satellites in space."

That's because AMPR doesn't just give scientists new information about hurricanes. The instrument also enables them to test equipment currently in space. Every day, numerous weather satellites orbit Earth to measure the rainfall rate of storms across the globe. They work much like AMPR except over much larger scales. Because they're so far above the Earth and moving so fast, they can take only one measurement every few miles along their track. Scientists can correct for such coarse measurements, but to do so they need highly accurate data. AMPR can take several measurements per mile, giving scientists the data they need to verify that weather satellites continue to provide accurate data.

"It's like the pixels in your computer screen," Petersen said. "When satellites take measurements, they have really big pixels, and we might lose some of the finer details of what's happening on the ground. AMPR has much smaller pixels, much higher resolution, and allows us to see a much clearer picture. It's a part of our arsenal to make sure what we're measuring from space makes sense. We'd hate to send something up and not have it accurately measure what's happening on the ground."

That information translates into better predictions of hurricane track and intensity – how hard it's going to rain in a certain area when a hurricane hits, for example, aiding in early flood warnings.

AMPR doesn't just measure how hard rain falls. Within the last several years, the AMPR team has worked vigorously to upgrade the instrument. These upgrades will enable AMPR to more accurately detect what kind of precipitation is in the storm. By identifying the shape of the precipitation, AMPR may present scientists with recognizable signatures that define different types of precipitation. For example, varying combinations of

*See **AMPR** on page 6*

Full-scale DM-2 solid rocket motor test set for Aug. 31

NASA and Alliant Techsystems Inc. will conduct a full-scale test of the DM-2 five-segment, first-stage solid rocket motor at 10:27 a.m. CDT Aug. 31. The two-minute test will take place at the ATK Aerospace Systems test facility in Promontory, Utah, where the DM-1 solid rocket motor was tested, right, in September 2009. The DM-2 motor design is almost identical to the first development motor. However DM-2 will be cooled to 40 degrees Fahrenheit for this full-duration firing to verify the performance of new materials and to assess motor performance at low temperatures. The motor was built for the Ares I rocket and is managed by the Marshall Space Flight Center. Team members can watch the test live at http://www.nasa.gov/ntv.

Classified Ads

To submit a classified ad to the Marshall Star, go to Inside Marshall, to "Employee Resources," and click on "Marshall Star Ad Form." Ads are limited to 15 words, including contact numbers. No sales pitches. Deadline for the next issue, Sept. 2, is 4:30 p.m. Thursday, Aug. 26.

Miscellaneous

GPS, TomTom XL 340-S, window and dash mount, quilted carrying case, $85. 256-880-9025

Band of Brothers - six Blu-Ray DVDs, collector's tin, $38. 256- 895-2959

Gold brass colonial style chandelier, $70; cut glass foyer semi-flush light, $25. 256-679-6676

Dutailier glider/rocker, white/natural, $100. 256-533-0087

Car or boat engine stand, 750 lb capacity, $50 obo. 256-651-5847

Two tickets for Tennessee Vols home football games; UT Martin, Florida, UAB, Mississippi, Kentucky. 256-975-9325

Weed Eater brand push mower, $80. 256-288-6301

Dining room table & three chairs, $60. 256-684-5505

Uncut, unfinished, solid antique wood door. 256-656-6316

TRANE air handler, 5KVA for 2-ton 10 SEER air conditioning, $320 obo. 256-883-1468

Yamaha YAS-23 Alto saxophone, Pro-tec case, Neotech neckstrap, Rovner ligature, $450. 256-714-3768

Tickets to various Tennessee Titans home games. 865-257-0003

Trimline treadmill, digital readout, adjustable height, speed, distance, $400. 256-864-0413

Two lower level Alabama versus San Jose State football tickets, Sept. 4, $225. 256-694-7342

Weslo exercise bike, $30; wingback chair, $25; steel angle, 1/8"X1/12 X1/1/2"X6 feet, $1 each. 256-852-6952

Vehicles

2008 Ford F150 XL, black, V6, automatic, 24k miles, $14,500. 256-653-9519

2007 Chevrolet 1500c crew cab, black, with bed cover, 63k miles, 4.8L. $15,000 obo. 256-505-2418.

2007 VWJetta GLI, warranty, 25/32mpg, 6-speed manual, sunroof, leather, dual climate, 40K miles, $18,500. 256-392-9626

2007 Suzuki V Strom 1000V Twin, blue, extra access. $7,000. 256-426-6363

2007 VW EOS 2.0T convert, six speed, red, black interior, 61,500 miles, $19,000. 256-694-0034

2004 Honda Odyssey EX, power doors, DVD, CD, PL, PW, 107k miles, $8,200 obo. 256-721-1398

2003 Tahoe LT, nine passenger, $3,000 below NADA. 256-723-8877

2003 Honda Pilot, tow, DVD, six CD, luxury package, 190k miles, $8,000. 256-617-1718

1998 Stingray RS180 Bowrider, seats seven, bimini covers, fish/ski, new 140 I/O, $9,500. 256-640-6427

1998 GMC Pickup LWB, white, 184k miles, $4,400. 256-468-9377

1994 Nissan Sentra, 160k miles, $1,100 obo. 208-660-0412

1993 Prowler Camper, 24-foot, sleeps six, 10x24 deck, $5,900. 256-683-3699

1989 Dodge Grand Caravan, 20-25 mpg, auto/air, white/blue, 149k miles, $1,600. 256- 227-0339

Wanted

Houses/offices to clean, available evenings and weekends. 256-777-8595 leave message

Large backpack for hiking and long trips. 256-655-0313

Small clearing near New Market needs bushhogging. 256-541-2483

Electrical work to do: wiring houses, detached-garage, yard lights, adding/removing switches, plugs, lights, ect. 256-468-8906

Students interested in obtaining beginner to advanced SUBA diver certification. 256-651-9909

Free

Most all the Marshall Stars since 1970. 256-232-4990

west side of the Redstone Arsenal Visitor's Center at Gate 9, where the historic marker will be erected. The date is a significant one – it's the 50th anniversary of the Sept. 8, 1960, dedication of the Marshall Center.

Marshall Center Director Robert Lightfoot and Charles Winters, executive vice president of the Huntsville/Madison County Convention & Visitors Bureau, will speak at the dedication. Additional speakers will be announced in next week's Marshall Star and on Inside Marshall.

The marker is part of the Alabama Department of Tourism's "2010: Alabama's Year of Small Towns and Downtowns" program, which will place approximately 215 historic markers across the state this year. The goal of the effort is to celebrate the Alabama communities, institutions and events that have helped shape the state's culture and heritage.

"It's impossible to imagine Huntsville without NASA and the Marshall Space Flight Center," said Winters, who submitted Marshall as a marker candidate to the Department of Tourism. "The contributions from the tens of thousands of employees both past and present have forever transformed our lives and our future."

The "Formation of the George C. Marshall Space Flight Center" marker plaque is 32 inches wide and 44 inches long and weighs approximately 90 pounds. The inscription follows:

"On September 8, 1960, President Dwight David Eisenhower formally dedicated the George C. Marshall Space Flight Center in Huntsville, Alabama, as a new field installation of the National Aeronautics and Space Administration (NASA).

"President Eisenhower addressed guests and employees of the new NASA organization that had resulted from the Army transfer of 4,670 civil service employees and 1,840 acres of Redstone Arsenal property and facilities worth $100 million. The new NASA center was named for the late General George C. Marshall. Mrs. Marshall was among those who joined the President at the dedication. Dr. Wernher von Braun, who became the Center's first Director, also participated.

"The Marshall Center had been activated on July 1, 1960, as part of NASA, which had been established on October 1, 1958, by Congressional passage of the National Aeronautics and Space Act and charged with conducting the Nation's space exploration programs. The nucleus of NASA was the Advisory Committee for Aeronautics later named the National Advisory Committee for Aeronautics (NACA)."

For more information about the "Year of Small Towns and Downtowns" program, visit http://www.alabama.travel/homecoming/markers.cfm.

Louisiana Gov. Bobby Jindal visits Michoud

Marshall Space Flight Center Director Robert Lightfoot, center, and Steven Doering, right, manager of NASA's Michoud Assembly Facility in New Orleans, join Louisiana Gov. Bobby Jindal, at the podium, in welcoming Blade Dynamics to the facility Aug. 17. The company will begin manufacturing wind turbine blades there this fall. Michoud, a NASA-owned facility managed by the Marshall Center, is one of the world's largest manufacturing plants.

AMPR *Continued from page 3*

fat or skinny rain drops, snow, ice or hail distributed throughout the depth of the storm will produce different brightness temperatures when viewed at different angles. A storm may develop and behave differently depending on these variations.

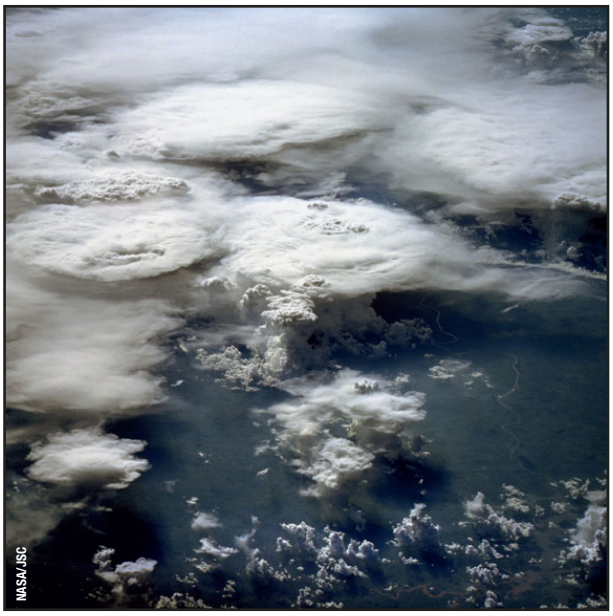
Engineers packed the 380-pound AMPR payload with a delicate set of instruments and computer hardware. AMPR gathers data by measuring the amount of microwave radiation rising from the surface beneath – often the ocean. Because rain water is a better emitter of microwave radiation than ocean water, the radiation measured from rainfall is actually greater during a big storm. This measurement is converted to a "brightness temperature," which correlates to how much radiation is being generated. The more rain, the higher the brightness temperature.

Alternatively, if a hurricane's clouds are full of ice or hail, as they usually are, much of the microwave radiation is scattered away. The corresponding brightness temperature is much lower than the anticipated surface measurement. Scientists can use those changes to determine how hard it's raining inside a storm or how much ice a given storm might contain.

"Whether rain drops are fat or skinny, and whether ice is round or bumpy, these factors are critical when we're trying to estimate rainfall rates," Petersen explained. "Because of air drag, the rate at which these precipitation particles fall through the air depends on their thickness or shape. A fat rain drop falls more slowly than a hail stone of the same size, for example – that factor enables you to determine rainfall rate."

After the GRIP experiment ends in September, Petersen and his team will unload the data and begin analyzing it, adding their findings to the increasingly large body of hurricane knowledge.

"The GRIP experiment will give us information about how a hurricane circulates and how it intensifies. Basically we have a bunch of theories about the role of precipitation in hurricanes, and we need to test them. That's where instruments like AMPR come in."



This image over Southern Brazil, taken from the space shuttle by an astronaut in February 1984, shows a mixture of cold and warm clouds.

After this summer's hurricane study, AMPR will continue to fly in storm campaigns. It's already scheduled for a major joint NASA and U.S. Department of Energy study in April 2011 to support the Global Precipitation Measurement.

Petersen loves the challenge. Storms have fascinated him ever since his junior year of high school, when lightning struck just inches away from him while he was at a drive-in movie.

"The thing that excites me is looking inside a storm that we can't fly into," he said. "We can't fly inside these big storms because they're just too nasty. The only way to get information about what's going on inside is to do what AMPR does.

"Being able to look at the guts of a storm and figure out what's going on, that's the key thing for me," he added.

With any luck, AMPR's look into hurricanes will put scientists one step closer to predicting some of the world's fiercest storms.

Brown, a communication of science and technology student from Vanderbilt University, was a summer intern working in the Public and Employee Communications Office.

MARSHALL STAR

Vol. 50/No. 48

Marshall Space Flight Center, Alabama 35812
256-544-0030
http://www.nasa.gov/centers/marshall

The Marshall Star is published every Thursday by the Public and Employee Communications Office at the George C. Marshall Space Flight Center, National Aeronautics and Space Administration. Classified ads must be submitted no later than 4:30 p.m. Thursday to the Marshall Public and Employee Communications Office (CS20), Bldg. 4200, Room 102. Submissions should be written legibly and include the originator's name. Send e-mail submissions to: MSFC-INTERCOM@mail.nasa.gov. The Star does not publish commercial advertising of any kind.

Manager of Public and Employee Communications: Dom Amatore
Editor: Jessica Wallace Eagan

U.S. Government Printing Office 2010-623-044-00063

www.nasa.gov

PRE-SORT STANDARD
Postage & Fees PAID
NASA
Permit No. 298